

IN THE CLAIMS:

1. (Currently amended) An apparatus for measuring displacement, the apparatus comprising:

 a machine element having a body defining an interior wherein the body has an interior surface and a length defined between a first end and a second end wherein the interior surface has a light-absorbing coating;

 a first wall at the first end;

 a second wall at the second end substantially enclosing the interior;

 a shaft element movable within the machine element;

 a head element attached to the shaft element adjacent to the interior surface of the machine element;

 a light source on the first wall of the machine element wherein the light source emits a light into the machine element;
and

 a sensor ~~on a wall parallel to the first wall~~ positioned to detect intensity of light within which is absorbed by the coating on the interior surface of the machine element wherein the intensity of light corresponds to a position of the head element within the machine element at any point between the first end and the second end.

2. (Original) The apparatus of Claim 1 further comprising:

 a coating on the shaft element.

3. (Currently amended) The apparatus of Claim 1 ~~further comprising:~~

~~a coating on the interior surface of the machine element~~
wherein the light-absorbing coating is an anodizing compound.

4. (Original) The apparatus of Claim 1 further comprising:

a seal disposed around the shaft element.

5. (Previously amended) The apparatus of Claim 1 further comprising:

a second sensor attached to the first wall.

6. (Previously amended) The apparatus of Claim 1 further comprising:

a first brush positioned at the second wall of the machine element.

7. (Original) The apparatus of Claim 6 wherein the first brush is constructed from wire.

8. (Previously amended) The apparatus of Claim 1 further comprising:

a second light source attached to the machine element at the first wall of the machine element.

9. (Currently amended) The apparatus of Claim 1 wherein the first wall is parallel to light source is attached at the second wall.

10. (Previously amended) The apparatus of Claim 1 further comprising:

a coating on the head element.

11. (Previously amended) An apparatus for cleaning a machine

component, the apparatus comprising:

 a machine element having a body defining an interior wherein the body has a length defined between a first end and a second end wherein the first end has a wall having an opening and further wherein the wall has a surface which is exterior to the machine element;

 a shaft element which is moved within the machine element wherein the shaft element extends through the opening in the wall;

 a head element within the interior of the machine element wherein the head element is attached to the shaft element; and

 a first brush positioned on the surface of the wall wherein the first brush is exterior to the machine element and contacts the shaft element.

12. (Original) The apparatus of Claim 11 further comprising:

 a seal disposed around the shaft.

13. (Original) The apparatus of Claim 11 further comprising:

 a coating on the shaft element.

14. (Previously amended) The apparatus of Claim 11 further comprising:

 a second brush positioned on the surface of the wall.

15. (Original) The apparatus of Claim 11 further comprising:

 a light source attached to the machine element.

16. (Original) The apparatus of Claim 11 further comprising:

 a sensor positioned to receive reflected light within the

machine element.

17. (Currently amended) A method for measuring displacement of a machine element, the method comprising the steps of:

providing a machine element having a body defining an interior wherein the body has an interior surface and a length defined between a first end wall and a second end wall wherein the interior surface has a light-absorbing coating;

providing a shaft element which moves within the machine element ~~wherein movement of the shaft element towards the first end causes movement of the shaft element away from the second end~~;

attaching a head element to the shaft element wherein the head element moves towards the first wall while simultaneously moving away from the second wall;

positioning the head element adjacent to the interior surface of the machine element;

attaching a light source to the machine element at the first end wall wherein the light source emits light into the machine element;

attaching a sensor to the machine element at the second end first wall; and

measuring intensity of emitted light which is absorbed by the coating on the interior surface of the machine element wherein the reflected light is detected by the sensor.

18. (Original) The method of Claim 17 further comprising the steps

of:

moving the shaft element; and

producing an output signal as the shaft element moves within the machine element.

19. (Previously amended) The method of Claim 18 further comprising the steps of:

providing a processing unit that receives the output signal;

and

displaying the output signal.

20. (Previously amended) The method of Claim 17 further comprising the step of:

positioning a seal within the machine element.

21. (Original) The method of Claim 17 further comprising the step of:

attaching a first brush to the machine element.

22. (Previously amended) The method of Claim 21 further comprising the step of:

attaching a second brush to the machine element.